RJA 2/18/22
JS 2/23/22

INITIAL REVIEW ENGINEERING REPORT [redacted]
PMN: 19-0021 0022

Focus Ready Draft 12/17/2018
ENGINEER: Lopez \ SL
PV (kg/yr): [redacted] Import Only

SUBMITTER: [redacted]

USE: [redacted]

Analogues (same use): none.
Patents (same use): none.
Consolidated Set P-19-21-22.
[redacted].

OTHER USES: Analogues (other use): [redacted]

Analogues (same use + other use): none.
Patents (other use): none.

MSDS: Yes Label: No

Gen Eqpt: Provide adequate general and local exhaust ventilation. / Wear safety glasses with side shields (or goggles). / Impervious gloves. / Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. / Wear appropriate thermal protective clothing, when necessary.

Respirator: Mist respirator, include single use respirator
Health Effects: May cause an allergic skin reaction.
TLV/PEL:
GLYCERIN 18 % 5 mg/m3 TWA OSHA PEL - Respirable fraction
GLYCERIN 18 % 15 mg/m3 TWA OSHA PEL - Total dust
2,2',2''-Nitrilotriethanol 0.4 % 5 mg/m3 TWA OSHA PEL

CRSS (11/26/2018):

Chemical Name: [redacted]

S-H20: Dispersible g/L @
VP: 1.0E-6 torr @
MW: [redacted] [redacted]<500 [redacted]<1000
Physical State and Misc CRSS Info:

Neat: [redacted] Mfg: NK: Imported Proc/Form: Dispersion: [redacted] PMN substance in [redacted] End Use: Solid: [redacted] [redacted] A Letter of Support is provided by Sanyo Chemical Industries, which includes the structures, IES reports, mw data, feedstocks, use, synthetic scheme, and p/chem properties for the PMN substances in the set.
MW NAVG = [redacted] with [redacted] < 500 and [redacted] < 1000, by GPC. [TMR]
Submitted Data: [redacted]; solubility in THF = [redacted]g/L (Exp.); particle size = [redacted] (Exp.); viscosity = [redacted] for a [redacted] PMN suspension in water; pH = 8 for a [redacted] PMN suspension in water. The MSDS is for a yellow ink containing the PMN substance. The LOS states that the number of repeating units in the [redacted]

Estimated Data: VP < 0.000001 torr (High MW salt); WS = dispersible (amine-neutralized anionic polymer).
Amine FGEW = [redacted] ([redacted] amine groups).
Cation-to-Anion ratio = [redacted] moles amine (in 100 g polymer)/[redacted] moles acid feedstock) = [redacted].

[redacted]

Consumer Use: No

SAT (concerns) (11/27/2018):

Related Cases and Misc SAT Info:

Analogues: [redacted]
Migration to groundwater: Negligible

PBT rating: P3B1T1
Health: 1-2 Dermal, Inhalation, Other

Eco: 1 No releases to water

OCCUPATIONAL EXPOSURE RATING: 1-2C

NOTES & KEY ASSUMPTIONS:

OccOccupational exposure and environmental releases were estimated using the 9/30/2013 version of ChemSTEER tool. Input to ChemSTEER tool includes information from: the PMN submission, physical / chemical properties, and the [redacted] GS. This PMN is import only and is imported in the [redacted]; therefore, MFG and PROC are not assessed. This PMN is part of the following consolidated set: P19-0021 and 0022. Both cases have the same use, PV, are non-volatile (VP<0.001 torr), and are at the same concentration in the ink formulation. The SAT concerns are for inhalation and dermal only. The following similar use past cases were referenced for consistency: [redacted]

POLLUTION PREVENTION CONSIDERATIONS:

None.

EXPOSURE-BASED REVIEW: [redacted]

INITIAL REVIEW ENGINEERING REPORT [redacted]

PMN: 19-0021 0022

Use: [redacted]

Number of Sites/ Location: 5

unknown site(s)

Days/yr: 200

Basis: Submission estimates 5 sites, [redacted] PMN in ink, [redacted] kg PMN/site-day and up to 200 exposure days/yr. At 5 sites and [redacted] kg/site-day, CS calculates 146 days/yr. To maximize exposure days, RAD assesses 5 sites and 200 days/yr. CS calculates [redacted] kg/site-day (Note: SAT indicates Eco rating is 1 and health rating is 1-2 with concerns for dermal and inhalation exposures only; therefore, RAD maximized exposure days.)

Process Description: [redacted]k (per submission and CRSS)

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium.

Water or Incineration
Conservative: 1.6E-1 kg/site-day over 200 days/yr from 5 sites
or 3.2E+1 kg/site-yr from 5 sites or 1.6E+2 kg/yr-all sites
to: water or incineration (GS)
from: Equipment Cleaning Losses of Liquids from Multiple Vessels
basis: EPA/OPPT Multiple Process Vessel Residual Model, RAD standard 2% residual. Submission estimates [redacted] Due to multiple unknown sites, RAD assesses equipment cleaning (assumed to include wastes from ink head nozzle purge) per the [redacted] GS which estimates up to 2% released to incineration or water. (Note: GS indicates water releases only expected for water-based inks, per submitter process description, ink contains [redacted]; therefore, RAD assumes water releases may occur, as conservative).

Incineration or Landfill
High End: 4.8E-2 kg/site-day over 200 days/yr from 5 sites
or 9.6E+0 kg/site-yr from 5 sites or 4.8E+1 kg/yr-all sites
to: Incineration or landfill (GS)
from: Cleaning Liquid Residuals from Containers Used to Transport the Raw Material
basis: EPA/OPPT Small Container Residual Model, RAD standard 0.6% residual. Submission estimates [redacted] Due to multiple unknown sites, RAD assesses per the [redacted] GS which estimates 0.6% release (small containers) to incineration or landfill.

RELEASE TOTAL
2.1E+2 kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY
Tot. # of workers exposed via assessed routes: 180
Basis: Submission estimates up to 8 workers exposed. Due to unknown sites, RAD assesses 18 workers/site, per GS. RAD assumes that all workers perform all activities and that all workers may be exposed at the highest potential exposures for each physical form, as conservative.

Inhalation:

Per November 2016 RAD guidance, the following default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years. Because of a ChemSTEER bug, these numbers were reversed to allow for calculation (BW = 78 kg and ATc = 80 years).

Exposure to Mist (non-volatile) (Class I)
Output 2:
> Potential Dose Rate: 3.6E-1 mg/day over 200 days/yr
> Lifetime Average Daily Dose: 1.3E-3 mg/kg-day over 200 days/yr
> Average Daily Dose: 2.5E-3 mg/day over 200 days/yr
> Acute Potential Dose: 4.6E-3 mg/day over 200 days/yr
Number of workers (all sites) with inhalation exposure: 90
Basis: [redacted] Activity; User-defined Inhalation Model. Per the [redacted] GS, workers may be exposed to ink mists at up to 0.45 mg/m3. Accounting for the concentration of the PMN in the ink, Cm = 0.036 mg/m3, h = 8 hr/day.

NOTE: The respirator class is: I. Particulate (including solid or liquid droplets).

INHALATION MONITORING DATA REVIEW

1)	Uncertainty (estimate based on model, regulatory limit, or data not specific to industry):	Yes
2)a)	Exposure level > 1 mg/day?	No
	OR	
b)	Hazard Rating for health of 2 or greater? 1-2	No

=> Inhalation Monitoring Data Desired? **No**

Dermal:

Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

Exposure to Liquid at 8.00% concentration
High End:
> Potential Dose Rate: 1.8E+2 mg/day over 200 days/yr
> Lifetime Average Daily Dose: 6.3E-1 mg/day over 200 days/yr
> Average Daily Dose: 1.2E+0 mg/day over 200 days/yr
> Acute Potential Dose: 2.2E+0 mg/day over 200 days/yr
Number of workers (all sites) with dermal exposure: 90
Basis: Unloading Liquid Raw Material from Containers; EPA/OPPT 2-Hand Dermal Contact with Liquids Model.